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ABSTRACT

In Connecticut, the Board of Trustees for Community-Technical Colleges mandated the assessment and placement of entering community college students, adopting the New Jersey College Basic Skills Placement Test (NJCBSPT) for a systemwide pilot test beginning in spring 1989. At (then) South Central Community College, a study was conducted to determine whether students who followed placement recommendations had higher success rates than those who enrolled in higher level courses; and whether students who were successful in basic skills courses enrolled in and successfully completed college-level English and math courses in greater percentages than students who did not follow the recommendations. Study findings, based on the fall 1990 NJCBSPT scores of 804 students, included the following: (1) 71% of the 702 students who took the math test placed in Basic Math I, 25.5% placed in Basic Math II, and 3.4% placed in College Math; (2) 45.5% of the 673 students who took the English tests placed in Basic English, and 54.5% in English Composition; (3) 63% of those recommended for Basic Math I, 79.3% of those recommended for Basic Math II, and 72.0% of those recommended for Basic English completed the remedial courses successfully; (4) 60% of those recommended for Basic Math I but who took Basic Math II were successful, as were 67% of those recommended for Basic Math II but who took College Math, and 68% of those who were recommended for Basic English but who enrolled in English Composition; and (5) among students who took the NJCBSPT prior to enrolling in fall 1990, only 23.8% were still enrolled in spring 1993. (MAB)

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PLACEMENT TESTING AND STUDENT SUCCESS: THE FIRST INTERVENING VARIABLE

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Association for Institutional Research
Chicago, Illinois
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Placement Testing and Student Success:
The First Intervening Variable

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Introduction

Community colleges have long provided pre-college courses (alternatively called remedial and developmental) for those students who do not possess the academic skills in English and Mathematics to succeed in college-level courses. However, in current times of dwindling resources and increased institutional accountability, many colleges are requiring their students to sit for various types of placement tests, either locally developed or state or national standardized examinations. This serves the two-fold purpose of directing students to courses where their chance to succeed is greater than their chance to fail and making the best use of personnel resources for both pre-college and college-level courses.

In Connecticut, the Board of Trustees for Community-Technical Colleges, "in recognition of the need to extend to an increasingly diverse student clientele access to educational opportunity and the need to provide a wide variety of instructional and student support services to assist students achieve their objectives," mandated the use of standardized testing for assessment and placement of entering community college students. The New Jersey College Basic Skills Placement Test (NJCBSPT) was adopted for a systemwide, three-semester pilot beginning in spring 1989 (Board of Trustees, 1988).

The test is designed to measure reading writing and mathematics skills of students entering college. Each of the five sections--Essay, Reading Comprehension, Sentence Sense,

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Mathematical Computation, and Elementary Algebra--contains multiple choice questions, with the exception of the essay. Because these are proficiency tests, they assist college personnel in determining whether an incoming student will profit more from placement in college-level courses than from placement in any of the pre-college courses offered by the college (Basic Skills Council, 1984).

The testing program was partially implemented in Fall 1989 at (then) South Central Community College (SCCC). All degree-seeking, first-time students must take the test, as well as students who have attended the college previously and have accumulated 12 credits and all students who wish to enroll in English and/or mathematics courses. Students are tested in computation, algebra (optional), reading, essay, and sentence. Scaled scores in these tests are used as the basis for placement recommendations.

It is a college policy that a student may be re-placed in a higher level course (above the recommended level) based on performance on an in-class, locally-developed test given by the instructor during the first week of class or as a result of an appeal process which takes into account additional information, such as evidence of appropriate instruction since the test was administered. Thus, students who enroll at a higher levels than recommended do not represent a random sample, nor are they circumventing the placement process. However, for purposes of this study, their performance is analyzed based on the NJCBSPT recommendation.

The objectives of this study are to determine if: (1) students who are placed in courses consistent with their competence in basic skills, as measured by the NJCBSPT, have a higher rate of success in those recommended courses than those who enroll initially in

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higher level courses and (2) students who are successful in basic skills courses enroll in greater percentages than those who do not follow the recommendation, in college-level mathematics and English, and complete them successfully. The underlying assumption is that the content of the recommended courses are appropriate for the skills being tested. In all instances, recommendations are derived from the NJCBSPT score.

This study is the beginning of a longitudinal tracking project that follows students from basic skills testing through program completion. Since data for 1989 were incomplete, the initial cohort for this study comprises those students who tested and enrolled at SCCC in fall 1990. This first report covers the first six semesters of enrollment (fall 1990 through spring 1993 for this cohort) and examines the placement scores and recommendations, the courses in which the student actually enrolled, student success in those courses, the impact on continued enrollment at the college and success in higher level courses. The data are also used to address the question of whether the cut-off scores were established and applied accurately with respect to course content or, conversely, if the course content for the recommended courses is consistent with the skills determined by the test.

Review of the Literature

Other studies have been carried out that examined basic skills and academic performance. One of the earliest studies at Queensborough Community College (CUNY) in 1974 compared the success in college courses of students from the same entering class enrolled in basic skills courses with those not enrolled in these courses. However, this 1974 study by Bergman and Gerace did not analyze the cohort of students recommended for basic skills courses and whether they enrolled in those courses; the comparison was between those

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who needed basic skills with those who did not. While the results (predictably) showed a higher percentage of A and B grades by non-basic skills students, there was a four percent increase in passing grades by basic skills students over two years and a five percent decrease in F grades.

Studies at Miami-Dade Community College (Belcher, 1984 ; Losak, 1982; Losak & Morris, 1982) examined, respectively, entering basic skills and CLAST performance, retention based on basic skills assessment performance and academic progress as related to basic skills. Belcher's study showed that "students above the cut score in all three basic skill areas were more likely to re-enroll and graduate than students who scored below (the cut) on all three criteria. Like the Queensborough study above, this study compared students who needed basic skills with those who did not. Her study also showed that students who enter with deficiencies are more likely to exit with deficiencies, either by withdrawing from the course (or college) or failing the exit test. Losak's retention study also compared students who required basic skills courses based on their placement cut-off score and those who did not need basic skills work. The group of entering students who scored above the cut-off on all three placement tests and required no remediation showed a 65.6 percent return rate the following term. Those who scored below the cut-off on all three tests and needed the remedial courses showed a 48.7 percent return rate. The study also reported that there was no difference in the return rate if the student passed one or two of the tests. He concluded that if a student scores below the cutoff on any (placement) test, the probability for attrition increases dramatically when compared to students who passed all (the tests). The academic progress study by Losak and Morris also looked at ethnic categories but concluded overall

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that (1) retention rates were higher for students above the placement test score cut-off, (2) a lower percentage of students below the cut-off made satisfactory performance and (3) a lower percentage of students below the cut-off showed continuous enrollment.

A 1985 study by Oromaner at Hudson County (NJ) Community College showed that, over five semesters, students in need of no basic skills were more likely to return to college. Further, students in need of basic skills were more likely to leave after one semester; 73 percent are gone after three semesters. Those students not needing remediation averaged four semesters of attendance and 60 percent were gone after three semesters.

Haase and Caffrey (1983) at Sacramento City College (CA) found a direct correlation between assessment scores and attained grades: the student reading below the 10th grade level has very little chance of receiving a C grade or better in any class except those created to meet the learning skill need. Further, the retention rates in English composition classes reflect the efficacy of correct placement in those classes under the assessment/placement process. Seven years later, also at Sacramento City College, Boese (1990) found that placement test scores and their subsequent recommendations for courses were significant predictors of QPA but not persistence. Hughes and Nelson (1991), using discriminant analysis to determine effect of placement scores on success, found "a very low degree of separation between students who receive passing grades and those who do not receive passing grades." Boggs (1984) at Butte College (CA) presented a case for basic skills intervention. His study, analyzing basic skills assessment on student achievement and persistence, found (1) that the assessment program, per se, did not effect withdrawal rates in writing courses, (2) that students who were enrolled in developmental English based on results of a writing

sample did not get significantly higher grades in freshman composition courses, (3) that students who were enrolled in developmental English using the Stanford TASK instrument received significantly higher grades in the freshman composition course, and (4) that students who were enrolled in developmental English showed a higher, but not statistically significant, persistence in freshman composition courses. This last study shows that taking the developmental courses when recommended by a standardized placement test can be predictive of persistence.

Data Used in Study

Data used for these analyses include 1) test data (raw and scaled scores for the computation, algebra, essay, and sentence sense tests) directly from the test scan files; 2) recommendations calculated from test score consistent with SCCC's cutoff and practices; 3) course data (lowest and highest level courses taken in Math and English with respective grades), and 4) academic data (QPA and number of terms attended) from the college's student records system. Mathematics and English were selected for study because college-level courses in those subjects are required for completion of degree programs. The cohort comprises all students (N=804) who took the placement test between March 1 and October 1, 1990 and enrolled for the first time in fall 1990. [Totals for the different test may not match because all students do not have to take all tests and/or there may be erroneous Social Security Numbers.] Data analysis was done using SAS V6.06.

Test Scores - Requirements for Cut-off Scores

Table 1 summarizes South Central Community College's cutoff scores and subsequent course recommendations. Placement in a mathematics course is based on both the

computation and algebra tests. Students scoring 160 or below on the computation test are recommended for enrollment in Basic Math I. If a student scores above 160 in computation, the score on the algebra test is used to determine placement in Basic Math II or a college-level mathematics course. Placement in English is based on a combination of the essay and sentence sense tests. Students who score above the cutoff on the essay test are recommended for college-level English. The sentence test score is used as further placement assistance when the essay score is near the cutoff.

Table 1. Course Level Recommendations Based on the SCCC Cut-off and NJCBSPT Scores

Mathematics		English	
Ranges	**Recommendation**	**Ranges**	**Recommendation**
< = 160 in Computation	Basic Math I	< 6 in Essay and < 160 in Sentence	Basic English
> = 161 in Computation and < = 171 in Algebra	Basic Math II	6 in Essay and > = 160 in Sentence	English Composition
> = 172 in Algebra	College Math	> = 7 in Essay	English Comp

Test Scores - Results and Recommendations

Table 2a presents the course recommendations based on the scaled scores for the computation and algebra tests. Of the 702 students who took the NJCBSPT computation test in 1990 and enrolled at South Central in Fall 1990, 499 (71%) scored 160 or less, with a

mean scaled score of 151.8 and were recommended for Basic Math I. One hundred seventy-nine students were recommended for Basic Math II with a mean scaled score of 167.1 on the computation test. Fifty-three of these students did not attempt the algebra test; their placement was based only on their computation score. Twenty-four were recommended for a college-level mathematics course with a mean algebra score of 179.7.

Table 2a. Math Placement Tests: Recommendations and Scores

Recommended Course	N	%	Mean Score	Standard Deviation
Basic Math I	499	71.1	151.8	5.06
Basic Math II	179	25.5	167.2	5.28
College Math	24	3.4	179.7	4.71

Table 2b shows the comparable data for the English placement tests: Of the 673 students who took the NJCBSPT essay and sentence tests in 1990 and enrolled at South Central, 306 (45.5%) were recommended for Basic English and 367 (54.5%) were recommended for English Composition.

Table 2b. English Placement Tests: Recommendations and Scores

Recommended Course	Test	N	%	Mean Score	Standard Deviation
Basic English	Essay	301	45.1	5.5	1.23
	Sentence	306	45.5	150.6	8.61
English Composition	Essay	365	54.9	7.7	1.08
	Sentence	367	54.5	165.6	7.68

Recommended vs. Enrolled

As illustrated in Table 3, there is some discrepancy between course recommendations and course enrollment. More than 60 percent of those students recommended for either Basic Math I or Basic English enrolled in those respective courses; less than half of the students recommended for Basic Math II actually enrolled in that course, with 13 percent opting to take the lower level Basic Math I. As was mentioned above, students may be "re-placed" in a higher level course based on an in-class assessment (not a retest of NJCBSPT) or if the student demonstrates additional instruction since the NJCBSPT was administered: only seven percent of the Basic Math I students and eight percent of the Basic Math II students fell into this category. However, almost 20 percent of the Basic English students enrolled in English Composition **instead of** the recommended course.

A curious statistic is that, after six semesters, a sizable percentage of students had not enrolled in **any** mathematics or English course. A later analysis of the data will examine the relationship between courses taken and withdrawal from the college.

Table 3. Course Recommendations vs. Actual Levels of Enrollment

Recommended Course	Lower Level		Recommended Level		Higher Level		No Math/Engl Course	
	N	%	N	%	N	%	N	%
Basic Math I			322	64.5	35	7.0	142	28.5
Basic Math II	24	13.4	82	45.8	15	8.4	58	32.4
College Math			19	79.2			5	20.8
Basic English			189	61.7	57	18.6	60	19.6
English Comp.	30	8.2	264	71.9			73	19.9

Effect of Placement Scores on Success at Recommended Level

The rate of successful completion was compared for each recommended course and level at which the student enrolled (see Table 4). For this analysis, grades were dichotomized to reflect successful completion (A, B, C) or non-successful completion (D, F, W, or No Grade). Of the students who were recommended for Basic Math I and enrolled in Basic Math I, 63 percent completed successfully; 78 percent of those who were recommended for Basic Math II successfully completed the course. This is contrasted with a 60 percent success rate for those who were recommended for Basic Math I as a result of the NJCBSPT but took the higher level course (as explained above). It should be noted that there was a 14 point difference in mean scores--as well as the 18 percentage points in success rates--between the two groups, and the average mean score of the "re-placed" group was seven points **lower** than the cut-off for Basic Math II.

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Similar results are noted for English. Seventy-two percent of those students who were recommended for Basic English and took that course completed it successfully. Eighty percent of those recommended for and took English Composition completed successfully. However, only 68 percent of those who were recommended for Basic English (as a result of the NJCBSPT) but took English Composition completed successfully. Again, there was a 15 point difference between the mean scores of those recommended for English Composition based on NJCBSPT and those who were "re-placed" in English Composition; and the average mean score on the sentence section for the "re-placed" group was more than eight points lower than the recommended cut-off for English Composition. Consequently, students who should be in Basic Math II as a result of the NJCBSPT had a higher success rate than those who did not follow the original recommendation and went into that course anyway. This conclusion holds for English Composition as well.

Table 4. The Relationships Among Recommended Courses, Course Enrollment Level and Successful Completion

Recommended Course	Level of Enrollment								
	Lower			Recommended			Higher		
	N	Pct. Succ	Mean Score	N	Pct. Succ	Mean Score	N	Pct. Succ	Mean Score
Basic Math I	--	--	----	322	63	151.7	35	60	153.2
Basic Math II	24	92	161.4	82	78	167.2	15	67	170.6
College Math	0	n/a	----	19	84	179.7	---	--	----
Basic English	--	--	----	189	72	147.9	57	68	152.5
English Comp	30	71	164.6	264	80	167.7	--	--	----

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NOTE: Mean scores in Basic Math I and II are for the computation test; the mean score for College Math is for the algebra test. Mean scores for both Basic English and English Composition are for the sentence sense test.

An analysis of variance was used to determine if there was a difference between the mean test scores of the group of students who were successful in courses and the students who were unsuccessful in the same courses. For all analyses in this study, a minimal level of significance was established at $p > .01$. The only category showing a statistically significant difference in the means was in the group which was recommended for Basic Math I and enrolled in that course (see Table 5). While that difference was statistically significant, it is open to further investigation whether the three-point difference between the mean scores of the two groups would indicate an academically significant difference in skill level and, therefore, necessitate changes in present cutoff scores. [Referring to Table 2a, the mean score of all students recommended for Basic Math I was 151.8.]

Table 5. Successful Completion in Enrolled Courses Based on Course Recommendations

Recommended Course	Enrolled Course	Succeeded		Did Not Succeed	
		N	Mean Score	N	Mean Score
Basic Math I	Basic Math I	203	152.8	119	149.8
Basic Math I	Basic Math II	16	154.4	19	151.3
Basic Math II	Basic Math II	65	158.7	17	158.2
Basic English	Basic English	136	148.2	53	147.5
Basic English	English Composition	39	152.4	18	153.1

NOTE: Mean scores in Basic Math I and II are for the computation test; the mean score for Basic English is for the sentence sense test.

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Effect of Enrollment in Recommended Courses on Higher Level Courses and Persistence

Based on an analysis of enrollment between fall 1990 and spring 1993, and compared with the highest level mathematics course taken (See Tables 6a and 6b), almost half the students recommended for and enrolled in Basic Math I show Basic Math I as their highest level math course, and 70 percent of these students had withdrawn from the college; 25 percent show Basic Math II as their highest level mathematics course, and 65 percent of these students had withdrawn from the college. However, just under 30 percent of those students originally recommended for Basic Math I enrolled in a college level mathematics course, and only 25 percent of these students had withdrawn from the college over the six semesters. [Cf Table 3:' One hundred twenty-seven students recommended for Basic Math I (25.5 percent) never enrolled in any mathematics course and withdrew from the college; 15 students are still enrolled but have not as yet taken a mathematics course.]

Of the students recommended for and enrolling in Basic Math II, 45 percent show Basic Math II as their highest level mathematics course, with 70 percent having withdrawn; the remaining 55 percent showed a college-level mathematics course on their records and only 31 percent had withdrawn from the college. [Cf Table 3: Forty-five of those recommended for Basic Math II (7.3 percent) never enrolled in any mathematics course and withdrew from the college; 13 are still enrolled but have not enrolled in a mathematics course.]

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Table 6a. Highest Level Mathematics Course Taken Before Withdrawing from the College

Enrolled in Recommended Course		Highest Course Taken					
		Basic Math I		Basic Math II		College Math	
		Enrolled	W/D	Enrolled	W/D	Enrolled	W/D
Basic Math I (N= 322)	N	151	105	80	52	91	23
	%	46.9	69.5	24.8	65.0	28.3	25.3
Basic Math II (N=82)	N			37	26	45	14
	%			45.1	70.3	54.9	31.1

Of the 189 students recommended and enrolled in Basic English, 42 percent showed this course as their highest English course, but 83.8 percent had withdrawn from the college. Almost 60 percent subsequently enrolled in English Composition with only 46.8 percent of them withdrawing from the college. [Fifty-seven students recommended for Basic English (18.6 percent) did not take any English course and withdrew from the college; three are still enrolled but have not taken an English course.]

Table 6b. Highest Level English Course Taken Before Withdrawing from the College

Recommended and Enrolled		Basic English		English Composition	
		Enrolled	W/D	Enrolled	W/D
Basic English (N=189)	N	80	67	109	51
	%	42.3	83.8	57.7	46.8

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Among **all** students who took the NJCBSPT prior to enrolling in fall 1990 (804), only 23.8 percent (191) were still enrolled in spring 1993. For the group recommended for Basic Math I--again, regardless of highest level of enrollment--the six-semester retention rate is 44.1 percent; for the Basic Math II group it is 51.3 percent. The Basic English group has a 37.6 percent retention rate. [No cross-check was performed to ascertain how many students are in both a mathematics and the English groups.] These statistics should be used in the assessment process to evaluate the relationship between student skill level and course content.

Relation of Success in First Basic-Level Course to Persistence and QPA

Students were categorized into five groups for both Math and English and then compared by mean terms of attendance and Quality Point Average (see Table 7). Analyses of variance of the mean overall QPAs and mean terms of attendance for the five categories indicate that those means are statistically different for both English and Math groups.

Summary and Recommendations

The basic goal of this study was to determine if students who enrolled in courses that were recommended on the basis of basic skills placement testing were more or less successful than those who enrolled in higher or lower level courses. This study used data from one college for the entering group for one term. These results should not be generalized for other colleges, other years at SCCC or the NJCBSPT. This success was measured in four ways: (1) success in the basic skills course, (2) completion of Math and English courses applicable to the associate degree or certificate, (3) overall academic achievement (QPA), and (4) continued enrollment (persistence).

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Table 7. Persistence and QPA Based on NJCBSPT Recommendations

Category (includes only students recommended for Basic Level Courses)	Mathematics			English		
	N	Mean QPA	Mean # of Terms Attended	N	Mean QPA	Mean # of Terms Attended
Recommended & Successful	268	2.71	4.15	136	2.25	3.84
Recommended & Not Successful	136	1.45	3.63	53	.99	2.75
Higher Course & Successful	31	2.92	4.74	39	2.63	3.92
Higher Course & Not Successful	19	2.33	3.58	18	1.84	3.78
No Math Course No English Course	224	2.07	2.47	60	1.56	1.70

Initial results show that a higher percentage of students who followed the recommendations of the NJCBSPT were successful, compared to those who did not: 63 percent of the students who were recommended for Basic Math I were successful at that level. Seventy-nine percent (79.3%) of those recommended for Basic Math II were successful. Seventy-two percent (72.0%) of those recommended for Basic English were successful. Correspondingly, 60 percent of those who were recommended for Basic Math I but took Basic Math II were successful, 67 percent of those who were recommended for Basic Math II but who took a college-level mathematics course were successful and 68 percent of those who were recommended for Basic English but enrolled in English Composition were successful.

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Data for completion of college-level courses are inconclusive: 28 percent of the students who were recommended for Basic Math I and enrolled at that level have completed a college-level math course, as have 54.8 percent of the students recommended for and enrolled in Basic Math II and 57.7 percent of the students recommended for and enrolled in Basic English. This evidence warrants an analysis of reasons for withdrawal or, for those still enrolled, why they did not register.

Obviously, students who were successful in their recommended basic-level courses had significantly higher QPAs than those who were unsuccessful in either recommended or higher level courses or who did not enroll in either Math or English courses. Since the data show that non-successful students do not withdraw immediately, further research is necessary to determine if they either re-enrolled for the course or tried other courses before withdrawing.

Students who were successful in their recommended basic-level courses tended to continue enrollment at SCCC for a slightly greater number of terms. The successful completion of pre-college (basic skills) courses are highly related to QPA, but have much less effect on persistence. This is consistent with Boese (1990) who reported that recommendations for courses were significant predictors of QPA but not persistence. It should also be noted, however, that the retention or persistence rates for students who went on after following the NJCBSPT recommendation were higher than for the cohort as a whole.

Withdrawal rates are presented regardless of success in the mathematics or English courses. However, the pattern of the highest percentage withdrawal from the lowest level

courses, **regardless of recommendation**, is worthy of further investigation. It may be that other factors are intervening.

In terms of assessment, the scores and recommendations for Basic Math I, in light of the relatively low 63 percent successful completion rate--compared to Basic Math II, College Math, Basic English, or English Composition--should be reviewed to ascertain (1) if, because this is the lowest level mathematics course, students who have a skill level too low to benefit from the current course content are being included and/or (2) the course content does not reflect the skills being tested. Since this is the first point in a longitudinal study, additional analyses are need to support these hypotheses.

This study establishes a model and demonstrates a need for additional and/or expanded research. The small and uneven cell sizes in some of the analyses indicates the need for the use of subsequent years' data; however, the initial results do indicate the need for additional consideration. As part of the continuing assessment process, the relationship of scores, recommendations and course content should be reviewed.

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REFERENCES

Basic Skills Council, State of New Jersey, Board of Higher Education. Interpreting Scores on the New Jersey College Basic Skills Placement Test. Trenton, New Jersey, Department of Higher Education, 1984.

Bergman, Irwin and Gerace, Robert. A Follow-up Study: How do Basic Skills Students Compare with Non-Basic Skills Students in their Subsequent College Courses. Queensborough Community College, City University of New York; March, 1974. [ED 135 435]

Belcher, Marcia. A Cohort Analysis of the Relationship between Entering Basic Skills and CLAST Performance for Fall 1981 First Time in College Students. Miami-Dade Community College, Office of Institutional Research; July, 1984. [ED 267 870]

Board of Trustees of Community-Technical Colleges. Policy Manual: Assessment - Entering Students. Adopted May 16, 1988.

Boese, Larry, *et. al.* The Relationship of Academic Success to Basic Skills, Educational Background and Demographic Characteristics: A Retrospective Study of Sacramento City College Students. Sacramento City College, Office of Planning, Research and Development; August, 1990. [ED 346 941]

Boggs, George R. The Effect of Basic Skills Assessment on Student Achievement and Persistence at Butte College: A Research Report. Butte College (CA); March, 1984. [ED 244 686]

Haase, Murray and Caffrey, Pat. Assessment at Sacramento City College. Sacramento City College Assessment Center; April, 1988. [ED 230 258]

Hughes, Ronald Elliott and Nelson, Carlene H. "Placement Scores and Placement Practices: An Empirical Analysis." Community College Review. Vol 19, Summer, 1991; pp 42 -46.

Losak, John. Retention Patterns for Full Time First Time in College Students Based on Basic Skills Assessment Performance. Miami-Dade Community College, Office of Institutional Research; September, 1982. [ED 226 784]

Presented at the 33rd Annual Forum of the Association for Institutional Research, Chicago, IL, May 19, 1993.

Losak, John and Morris, Cathy. Retention, Graduation and Academic Progress as Related to Basic Skills. Miami-Dade Community College, Office of Institutional Research; November, 1982. [ED 226 784]

Oromaner, Mark. A Retention Study of Entering Students in Basic Skills Courses and Students in Non-Basic Skills Courses. Hudson County (NJ) Community College; June, 1985. [ED 257 537]

Presented at the 33rd Annual Forum of the Association for Institutional Research, Chicago, IL, May 19, 1993.